

Baird-Parker Agar Base • Baird-Parker Agar EY Tellurite Enrichment

Intended Use

Baird-Parker Agar Base is used with EY (Egg Yolk) Tellurite Enrichment in the preparation of Egg-Tellurite-Glycerine-Pyruvate Agar (ETGPA) for selective isolation and enumeration of coagulase-positive staphylococci from food, skin, soil, air and other materials. It may also be used for identification of staphylococci on the basis of their ability to clear egg yolk.

Summary and Explanation

A number of culture media had been utilized for the recovery of staphylococci from foods prior to the development of a new formulation by Baird-Parker in 1962.^{1,2} This scientist subsequently published additional results on the efficacy of the medium for the recovery of coagulase-positive staphylococci.^{3,4} In 1971, Tardio and Baer⁵ and Baer⁶ reported on the results of a study comparing 18 staphylococcal isolation media in which they concluded that Baird-Parker Agar should be substituted for Vogel and Johnson Agar in the official AOAC procedure for the isolation and enumeration of *Staphylococcus aureus*. In this study, it was shown that Baird-Parker Agar was less inhibitory than Vogel and Johnson Agar for selected strains of *S. aureus* and that it possesses a diagnostic aid (egg yolk reaction) not present in Vogel and Johnson Agar. The use of Baird-Parker Agar subsequently was officially adopted by AOAC International.⁷

Principles of the Procedure

Baird-Parker Agar Base contains peptone, beef extract and yeast extract as sources of nitrogenous compounds, carbon, sulfur, vitamins and trace minerals. Sodium pyruvate is incorporated in order to stimulate the growth of *S. aureus* without destroying the selectivity. The tellurite additive is toxic to egg yolk-clearing strains other than *S. aureus* and imparts a black color to the colonies. The egg yolk additive, in addition to being an enrichment, aids in the identification process by demonstrating lecithinase activity (egg yolk reaction). Glycine and lithium chloride have inhibitory action for organisms other than *S. aureus*.

Formulae

Difco™ Baird-Parker Agar Base

Approximate Formula* Per 950 mL	
Pancreatic Digest of Casein	10.0 g
Beef Extract	5.0 g
Yeast Extract	1.0 g
Glycine	12.0 g
Sodium Pyruvate	10.0 g
Lithium Chloride	5.0 g
Agar	20.0 g

Difco™ EY Tellurite Enrichment

Egg yolk emulsion containing potassium tellurite consists of 30% egg yolk suspension with 0.15% potassium tellurite.

*Adjusted and/or supplemented as required to meet performance criteria.

Directions for Preparation from Dehydrated Product

1. Suspend 63 g of the powder in 950 mL of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. Cool to 45-50°C and aseptically add 50 mL of EY Tellurite Enrichment. Mix thoroughly but gently.
5. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Food samples are macerated in suitable broth medium, diluted as desired and the dilutions spread-inoculated onto the agar surfaces, which should be dry when inoculated. Incubate plates aerobically for 24 hours at 35 ± 2°C. Consult references for detailed instructions.⁷

Expected Results

Typical colonies of *S. aureus* are black, shiny, convex and surrounded by clear zones (egg yolk reaction) of approximately 2-5 mm. Coagulase-negative staphylococci generally do not grow well; if some growth occurs, the typical clear zones are absent. The majority of other organisms are inhibited but some may grow sparsely, producing white to brown colonies with no clearing of the egg yolk.

Limitation of the Procedure

Baird-Parker Agar is selective for coagulase-positive staphylococci, but other bacteria may grow. Microscopic examination and biochemical tests will differentiate coagulase-positive staphylococci from other organisms.

User Quality Control

Identity Specifications

Difco™ Baird-Parker Agar Base

Dehydrated Appearance: Light tan, free-flowing, homogeneous.
 Solution: 6.3 g/95 mL solution, soluble in purified water upon boiling. Solution is light to medium amber, very slightly to slightly opalescent.

Prepared Appearance (Final): Yellow, opaque.

Reaction of 6.3 g/95 mL
 Solution at 25°C: pH 6.9 ± 0.1

Difco™ EY Tellurite Enrichment

Appearance: Canary yellow, opaque suspension with a resuspendable precipitate.

Cultural Response

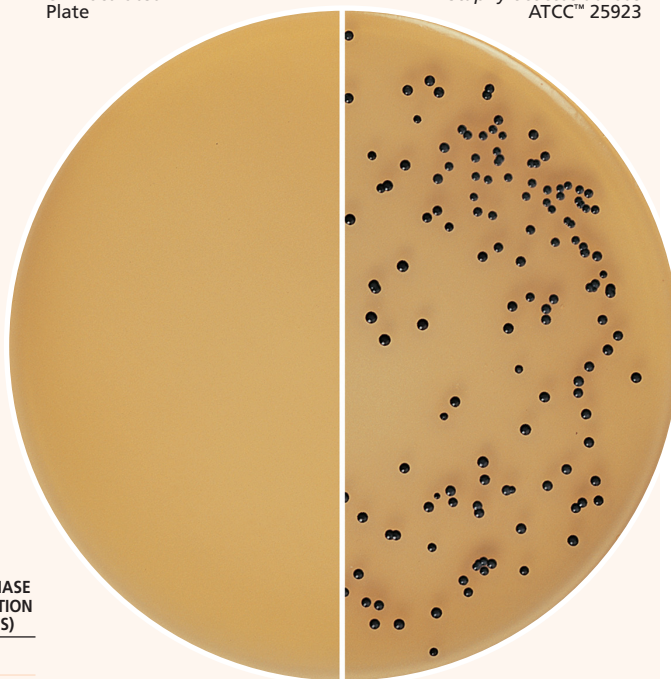
Difco™ Baird-Parker Agar Base with EY Tellurite Enrichment

Prepare the medium per label directions. Inoculate and incubate at 35 ± 2°C for 24-50 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY	COLONY COLOR	LECITHINASE PRODUCTION (HALOS)
<i>Bacillus subtilis</i>	6633	10 ³	None to poor	Brown	–
<i>Proteus mirabilis</i>	25933	10 ³	Good	Brown	–
<i>Staphylococcus aureus</i>	25923	10 ² –3 × 10 ²	Good	Black	+
<i>Staphylococcus epidermidis</i>	14990	10 ² –3 × 10 ²	Poor to good	Black	–

Uninoculated
Plate

Staphylococcus aureus
ATCC™ 25923



References

1. Baird-Parker. 1962. J. Appl. Bacteriol. 25:12.
2. Baird-Parker. 1962. J. Appl. Bacteriol. 25:441.
3. Baird-Parker. 1963. J. Gen. Microbiol. 30:409.
4. Baird-Parker. 1965. J. Gen. Microbiol. 38:383.
5. Tardio and Baer. 1971. J. Assoc. Off. Anal. Chem. 54:728.
6. Baer. 1971. J. Assoc. Off. Anal. Chem. 54:732.
7. Horwitz (ed.). 2007. Official methods of analysis of AOAC International, 18th ed., online. AOAC International, Gaithersburg, Md.

Availability

Difco™ Baird-Parker Agar Base

AOAC BAM CCAM COMPF ISO SMD SMWW USDA

Cat. No. 276840 Dehydrated – 500 g
 276810 Dehydrated – 2 kg

Difco™ EY Tellurite Enrichment

AOAC BAM CCAM COMPF ISO SMD SMWW USDA

Cat. No. 277910 Bottle – 6 × 100 mL*

BBL™ Baird-Parker Agar

AOAC BAM CCAM COMPF ISO SMD SMWW USDA

United States and Canada

Cat. No. 297214 Prepared Plates (complete) – Pkg. of 20*
 297725 Prepared Plates (complete) – Ctn. of 100*

Europe

Cat. No. 255084 Prepared Plates (complete) – Pkg. of 20*

Mexico

Cat. No. 223950 Prepared Plates (complete) – Pkg. of 10*

*Store at 2-8°C.